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SILVERSTONE®
Designing Inspiration

STRIDER GOLD SERIES

ST65F-G / ST55F-G

The perfect balance of performance, effiency, and quality

Compact design with a depth of 140mm for easy integration
80Plus Gold certification with higher efficiency 87%~90% at 20%~100% loading
100% modular cables
24/7 continuous power output with 40°C operating temperature
Class-leading single +12V rail
Strict ±3% voltage regulation and low ripple & noise
Silent running 120mm fan with 18dBA minimum

SPECIFICATION

SilverStone Strider Gold
ST65F-G
ST55F-G
ATX12V / EPS 12V Switching Power Supply
With Active PFC
80Plus Gold
PS/2

This specification describes the requirements of 550W, 650Watts switching. power supply with an stretch ATX form-factor and EPS 12V, +5V standby voltage, remote on/off control, full range line input capability and forced air cooling characteristics.

1. AC INPUT

1.1 AC input requirements

The input voltage, current, and frequency requirements for continuous operation are stated below.

Table 1 AC Input Line Requirements

Parameter	Min.	Nom.	Max.	Unit
Vin(Full range)	90	100---240	264	VACrms
Vin Frequency	47	60-----50	63	Hz
Iin(ST55F-G)		7------3.5		Arms
Iin(ST65F-G)		8--------4		Arms

Power factor correction (PF)>0.90 at full load.

1.2 Inrush current regulation

The power supply must meet inrush requirements for any rated AC voltage, during turn on at any phase of AC voltage, during a single cycle AC dropout condition, during repetitive ON/OFF cycling of AC, and over the specified temperature range (Top). The peak inrush current shall be less than the ratings of its critical components (including input fuse, bulk rectifiers, and surge limiting device).

2. DC OUTPUT

2.1 DC voltage regulation

Parameter	Range	Min	Nom.	Max	Unit
+3.3V	+/-3%	+3.2	+3.3	+3.39	Volts
+5V	+/-3%	+4.85	+5	+5.15	Volts
+12V	+/-3%	+11.64	+12.0	+12.36	Volts
-12V	+/-10%	-10.8	-12.0	-13.2	Volts
+5VSB	+/-5%	+4.75	+5	+5.25	Volts

Note:
1.Voltage tolerance is requied at main connector and S-ATA connector(if used).
2.Output transient response tested DC voltage regulation range +5V±5%, +12V±5%, +3.3V±5%, +5Vsb±5%, -12V±10%.

2.2 Load ranges

2.2.1: (ST55F-G)

Parameter	Min	Nom.	Max	Peak	Unit
+3.3V	0.2	-	22		Amps
+5V	0.2	-	18		Amps
+12V	0.3	-	45	48	Amps
-12V	0	-	0.3		Amps
+5VSB	0	-	2.5	3.5	Amps

1.Maximum continuous total DC output power should not exceed 550W.
2.Maximum continuous combined load on +3.3V and +5V outputs shall not exceed 140W.
3.Maximum combined current for the +12V outputs shall be 45A(540W).
4.Maximum peak total DC output power should not exceed 600W.
5.Peak power and current loading shall be supported for a minimum of 12 second.
6.When +12V is load to 25A , -12V minimum load is 0.02A.

2.2.2: (ST65F-G)

Parameter	Min	Nom.	Max	Peak	Unit
+3.3V	0.2	-	22		Amps
+5V	0.2	-	20		Amps
+12V	0.3	-	54	57	Amps
-12V	0	-	0.3		Amps
+5VSB	0	-	2.5	3.5	Amps

1.Maximum continuous total DC output power should not exceed 650W.
2.Maximum continuous combined load on +3.3V and +5V outputs shall not exceed 150W.
3.Maximum combined current for the +12V outputs shall be 54A(648W).
4.Maximum peak total DC output power should not exceed 700W.
5.Peak power and current loading shall be supported for a minimum of 12 second.
6.When +12V is load to 25A , -12V minimum load is 0.02A.

2.3 Output Ripple
2.3.1 Ripple regulation

Parameter	Ripple&Noise	Unit
+3.3V	50	mVp-p
+5V	50	mVp-p
+12V1	120	mVp-p
+12V2	120	mVp-p
-12V	100	mVp-p
+5VSB	50	mVp-p

2.3.2 Definition
The ripple voltage of the outputs shall be measured at the pins of the output connector when terminated in the load impedance specified in figure 1. Ripple and noise are measured at the connectors with a 0.1uF ceramic capacitor and a 10uF electrolytic capacitor to simulate system loading. Ripple shall be measured under any condition of line voltage, output load, line frequency, operation temperature.

2.3.3 Ripple voltage test circuit

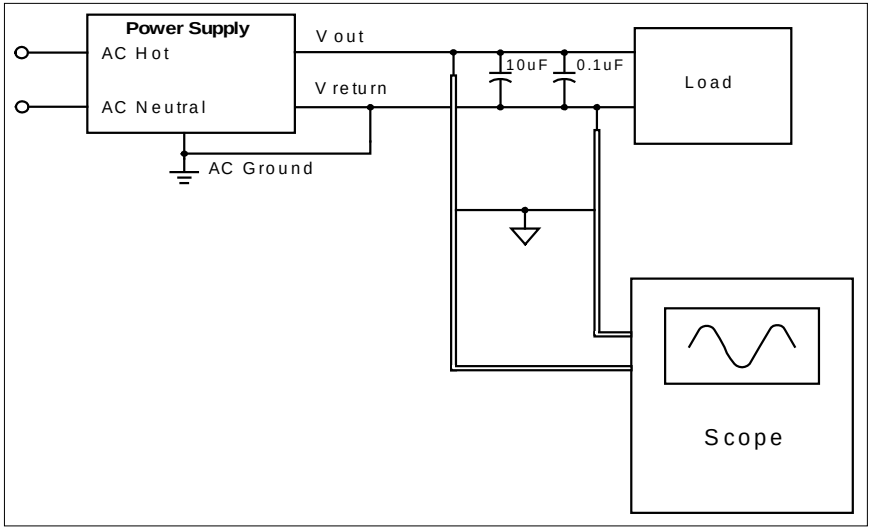

Figure 1. Ripple voltage test circuit

2.4 Overshoot
Any overshoot at turn on or turn off shall be less 10% of the norminal voltage value, all outputs shall be within the regulation limit of section 2.0 before issuing the power good signal of section 5.0.

2.5 Efficiency
Power supply efficiency typical 87% for at normal voltage at full load on all outputs.

2.6 Remote ON/OFF control
When the logic level "PS-ON" is low, the DC outputs are to be enabled.
When the logic level is high or open collector, the DC outputs are to be disabled.

3.0 PROTECTION

3.1 Over current protection
The power supply shall have current limit to prevent the +3.3V, +5V, and +12V1, +12V2 outputs from exceeding the values shown in the following Table.If the current limits are exceeded the power supply shall shutdown and latch off.

ST55F-G

Voltage	Over Current Limit (Iout limit)
+12V	50A minimum; 65A maximum
+5V	25A minimum; 40A maximum
+3.3V	27A minimum; 45A maximum

ST65F-G

Voltage	Over Current Limit (Iout limit)
+12V	58A minimum; 70A maximum
+5V	25A minimum; 40A maximum
+3.3V	27A minimum; 45A maximum

3.2 Over Temperature Protection

The power supply will be protected against over temperature conditions caused by loss of fan cooling or excessive ambient temperature. In an OTP condition the PSU will shutdown. When the power supply temperature drops to within specifide limits, the power supply shall restore power automatically. The OTP circuit must have built in hysteresis such that the power supply will not oscillate on and off due to temperature recovering condition.

3.3 Over-power protection

The power supply will be shutdown and latch off when output power within 105~150% of rated DC output.

Note: Assurance machine can work at low voltage,full load won't damage machine.

3.4 Under voltage protection

In an under voltage fault occurs, the supply will latch all DC outputs into a shutdown state when +12V,+5V & +3.3V outputs under 85% of it's maximum value.

3.5 Over voltage protection

The over voltage sense circuitry and reference shall reside in packages that are separate and distinct from the regulator control circuity and reference. No single point fault shall be able to cause a sustained over voltage condition on any or all outputs. The supply shall provide latch-mode over voltage protection as defined in Table.

output	Minimum	Nominal	Maximum	Unit
+12 VDC	13.3	15.6	16.5	Volts
+5 VDC		6.30	7.00	Volts
+3.3 VDC		4.3	4.50	Volts

3.6 Short circuit

An output short circuit is defined as any output impedance of less than 0.1 ohms. The power supply shall shut down and latch off for shorting the +3.3 VDC, +5 VDC, or+12 VDC rails to return or any other rail. Shorts between main output rails and +5VSB shall not cause any damage to the power supply. The power supply shall either shut down and latch off or fold back for shorting the negative rails.+5VSB must be capable of being shorted indefinitely, but when the short is removed, the power supply shall recover automatically or by cycling PS_ON#. The power supply shall be capable of withstanding a continuous short-circuit to the output without damage or overstress to the unit.

3.7 No load operation

No damage or hazardous condition should occur with all the DC output connectors disconnected from the load.The power supply may latch into the shutdown state.

4. TIMING

4.1 Signal timing drawing

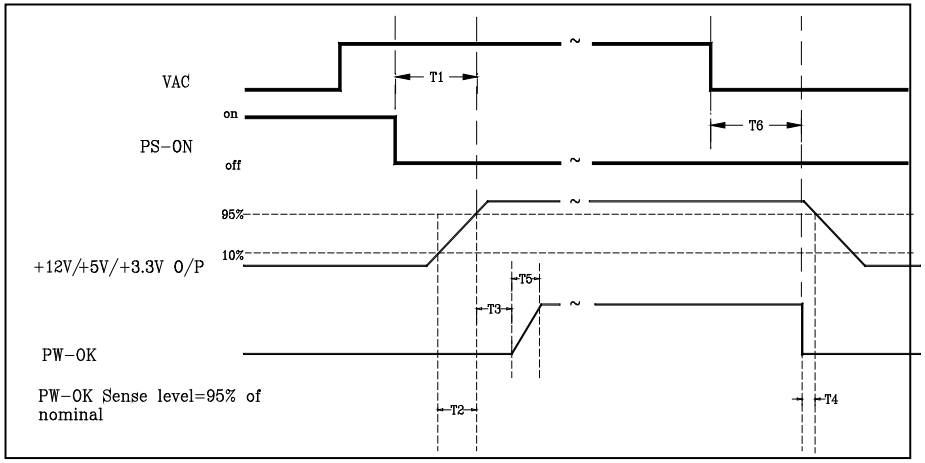

Figure 2. PS-OK Timing Sequence

(1)T3: Power good signal turn on delay time (100ms~500ms)

(2)T4: Power good signal turn off delay time (1ms min)

(3)T2: Rise time (0.1~20ms)

(4)T6: Hold up time (16ms min) Tested at full load and over 100-240VAC input.

4.2 Hold up time

When the power loss its input power, it shall maintain 16ms in regulation limit at normal input voltage and 80% full load (AC:115V/60Hz or 230V/50Hz)

5. ENVIRONMENT

5.1 Operation

Temperature	0 to 40℃
Relative Humidity	10 to 90%, non-condensing

5.2 Shipping and Storage

Temperature	-20 to 60℃
Relative Humidity	5 to 95%, non-condensing

5.3 Altitude

Operating	10,000FT max
Storage	50,000FT max

6. SAFETY

6.1 Underwriters Laboratory (UL) recognition.

The power supply designed to meet UL 1950.

6.2 The power supply must bear the German Bauart Mark from TUV.

7. ELECTROMAGNETIC COMPATIBILITY (EMC)

7.1 IEC 61000-4-2 ESD LEVEL X20KV4.

7.2 IEC 61000-4-3 radiated electrical field requirement.

7.3 IEC 61000-4-4 BURST .

7.4 IEC 61000-4-5 surge Voltages

7.5 EN61000-3-2 harmonic current emissions.

If applicable to sales in Japan or Europe, the power supply shall meet the requirements of EN 61000-3-2 class D and the guidelines for the suppression of harmonics in appliances and general use equipment class D for harmonic line current content at full-rated power.

7.6 EN55024 class B radio interference (CISPR 22)

7.7 FCC part 15, subpart J class B 115VAC operation.

8. MTBF

8.1 MTBF(mean time between failures) calculation

The demonstrated MTBF shall be 100,000 hours of continuous operation at 25oC, full load, and nominal line. The MTBF of the power supply be calculated in accordance with MIL-HDBK-217F. The DC FAN is not included.

9. MECHANICAL REQUIREMENTS

9.1 Physical Dimension

150 mm (W) × 86 mm (H) × 140mm (D)

M/B 24PIN connector

	Signal	Pin	Pin	Signal	
Orange	+3.3V	13	1	+3.3V	Orange
Blue	-12VDC	14	2	+3.3V	Orange
Black	COM	15	3	COM	Black
Green	PS-ON	16	4	+5VDC	Red
Black	COM	17	5	COM	Black
Black	COM	18	6	+5VDC	Red
Black	COM	19	7	COM	Black
White	N/C	20	8	PWRGOOD	Grey
Red	+5VDC	21	9	+5Vsb	Purple
Red	+5VDC	22	10	+12V	Yellow
Red	+5VDC	23	11	+12V	Yellow
Black	COM	24	12	+3.3V	Orange

EPS 12V 8PIN connector

	Signal	Pin	Pin	Signal	
Yellow	+12V	5	1	COM	Black
Yellow	+12V	6	2	COM	Black
Yellow	+12V	7	3	COM	Black
Yellow	+12V	8	4	COM	Black

ATX 12V 4PIN (4+4PIN EPS 12V in split mode)

	Signal	Pin	Pin	Signal	
Black	GND	1	3	+12V	Yellow
Black	GND	2	4	+12V	Yellow

4PIN peripheral connector (HDD)

	Signal	Pin	Pin	Signal	
Yellow	+12V	1	1	+5VDC	Red
Black	COM	2	2	COM	Black
Black	COM	3	3	COM	Black
Red	+5VDC	4	4	+12V	Yellow

4PIN floppy connector (FDD)

SATA connector

	Signal	Pin
Orange	+3.3V	5
Black	COM	4
Red	+5V	3
Black	COM	2
Yellow	+12V	1

8PIN PCI Express connector

	Signal	Pin	Pin	Signal	
Yellow	+12V	1	5	COM	Black
Yellow	+12V	2	6	COM	Black
Yellow	+12V	3	7	COM	Black
Black sense1	COM	4	8	COM	Black

6PIN PCI Express connector

	Signal	Pin	Pin	Signal	
Yellow	+12V	1	4	COM	Black
Yellow	+12V	2	5	COM	Black
Yellow	+12V	3	6	COM	Black

Warranty Information

This product has a limited 3 year warranty in North America, Europe, and Australia.
For information on warranty periods in other regions, please contact your reseller or SilverStone authorized distributor.

Warranty terms & conditions

1. Product component defects or damages resulted from defective production is covered under warranty.
   Defects or damages with the following conditions will be fixed or replaced under SilverStone Technology's jurisdiction.
a) Usage in accordance with instructions provided in this manual, with no misuse, overuse, or other inappropriate actions.
b) Damage not caused by natural disaster (thunder, fire, earthquake, flood, salt, wind, insect, animals, etc…)
c) Product is not disassembled, modified, or fixed. Components not disassembled or replaced.
d) Warranty mark/stickers are not removed or broken.
   Loss or damages resulted from conditions other than ones listed above are not covered under warranty.

2. Under warranty, SilverStone Technology's maximum liability is limited to the current market value for the product (depreciated value, excluding shipping, handling, and other fees). SilverStone Technology is not responsible for other damages or loss associated with the use of product.

3. Under warranty, SilverStone Technology is obligated to repair or replace its defective products. Under no circumstances will SilverStone Technology be liable for damages in connection with the sale, purchase, or use including but not limited to loss of data, loss of business, loss of profits, loss of use of the product or incidental or consequential damage whether or not foreseeable and whether or not based on breach of warranty, contract or negligence, even if SilverStone Technology has been advised of the possibility of such damages.

4. Warranty covers only the original purchaser through authorized SilverStone distributors and resellers and is not transferable to a second hand purchaser.

5. You must provide sales receipt or invoice with clear indication of purchase date to determine warranty eligibility.

6. If a problem develops during the warranty period, please contact your retailer/reseller/SilverStone authorized distributors or SilverStone **http://www.silverstonetek.com**.
   Please note that: (i) You must provide proof of original purchase of the product by a dated itemized receipt; (ii) You shall bear the cost of shipping (or otherwise transporting) the product to SilverStone authorized distributors. SilverStone authorized distributors will bear the cost of shipping (or otherwise transporting) the product back to you after completing the warranty service; (iii) Before you send the product, you must be issued a Return Merchandise Authorization ("RMA") number from SilverStone. Updated warranty information will be posted on SilverStone's official website. Please visit **http://www.silverstonetek.com** for the latest updates.

Additional info & contacts

For North America (usasupport@silverstonetek.com)
SilverStone Technology in North America may repair or replace defective product with refurbished product that is not new but has been functionally tested. Replacement product will be warranted for remainder of the warranty period or thirty days, whichever is longer. All power supplies should be sent back to the place of purchase if it is within 30 days of purchase, after 30 days, customers need to initiate RMA procedure with SilverStone Technology in USA by first downloading the "USA RMA form for end-users" form from the below link and follow its instructions.
http://silverstonetek.com/contactus.php

For Australia only (support@silverstonetek.com)
Our goods come with guarantees that cannot be excluded under the Australian Consumer Law.
You are entitled to a replacement or refund for a major failure and for compensation for any other reasonably foreseeable loss or damage.
You are also entitled to have the goods repaired or replaced if the goods fail to be of acceptable quality and the failure does not amount to a major failure.
Please refer to above "Warranty terms & conditions" for further warranty details.

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